QUANTA

CONTENTS

INFORMATION ON THE GROUP

Membership of QUANTA (QL Users and Tinkerers Association) is by subscription to QUANTA, the group's newsletter, which is published monthly. Membership details are obtainable from the secretary. Membership of the group is open to anyone with an interest in the Sinclair QL microcomputer.

Members requiring assistance with problems related to the QL may write to or phone the secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops will be arranged from time to time in various parts of the country.

The group maintains a software library. Most of the programmes are free to members. A library list will be published from time to time. Programmes are obtainable from the sub-librarians.

A list of members in any particular area is obtainable from the secretary.

Please send all contributions to the newsletter to the editor.

Chairman and   Secretary and
Newsletter Editor   Newsletter Publisher

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NOTES FOR CONTRIBUTORS TO QUANTA

QUILL files on Microdrive or 40 track disk (single or double sided), are preferred. Cartridges and disks will be returned ASAP. Printed or hand written material is acceptable, of course.

Short programmes can be included, but lengthy programmes should be placed in the library, and a description sent in for the newsletter

EDITORIAL

Please note my change of address and phone number. I am having my post and phone calls redirected to the new address, but post will obviously get to me quicker if sent directly to me in London.

I have had to hold quite a lot of material over for the next issue once again.

You should have received details of the Swindon weekend workshop on the 14/15/16 March, which is a joint meeting with NATGUG, the TRS-80 group. We had already arranged a NATGUG meeting for that weekend, so a joint meeting makes a lot of sense, especially as the AGMs of the two groups are due about now, and will be held during the weekend. Apart from the formal lecture sessions, participants gain a great deal from the informal exchange of ideas over a meal, or in the systems room, where members may set up their machines. All members attending the workshop will be required to sign an undertaking that they will not carry out any illegal copying of software. Any members found making unauthorised copies will be required to leave the meeting, and their membership of QUANTA will be rescinded. They won't get a refund. You have been warned:

Any members interested in doing their own RAM expansion during the weekend should contact Brian Pain as soon as possible. I'll be supervising the session (having already upgraded my machine, I should be able to sort out most problems you are likely to encounter(and the more people we have, the cheaper it'll be, as we can get better prices on the 256K RAMs. You'll have to do your own soldering, of course, so unless you are reasonably skilled with a soldering iron, don't consider this type of DIY upgrade. Anyone is welcome to watch, of course.

Unlike commercial publications, I often publish more than one review of a product, sometimes in the same issue. I feel that this can be quite useful, in that two different viewpoints can be much more informative than a single account. Moreover, reviews by two individuals often complement one another, with something being covered by one reviewer that the other missed
.

Leon Heller

MEMBERS' LETTERS

Since I last wrote to you I have received several library tapes, a copy of Adrian Dickens's book, a complete set of back issues of QUANTA from a former member, a copy of Metacomco's C compiler, enough blank tapes to at least backup all the above, and an Epson FX85 printer.

I am particularly pleased with the library programmes, and have learned a lot from listing them out on my printer and seeing how the clever bits are done. All the problems I wrote to you about have now been solved. I now feel that I'm beginning to control the computer instead of the other way round!

The FX85 is an FX80 with added features like NLQ and external button control of print styles. The screen dump programme on EASEL works perfectly, as does the one in the library - especially now that I have got the wiring connected properly! I had one problem with printing from QUILL in that the last line was sometimes held in the line buffer and could only be printed by putting the printer off line. The printer's line buffer needs to be told that a line is complete, of course, so one must press "ENTER" at the end of a piece even when it stops mid line. Other equally absentminded QUILL users can do what I've done and edit the printer driver to send a "LF" as post-amble code. This sometimes generates an extra blank line but it also ensures that the footer is printed on the last page (if you use the darned things!). I think that many of the so called bugs in QUILL are really due to people not understanding how their printer works or not taking advantage of the flexibility built into QUILL. I've only learned by experience! For example, I, too, can start a letter on page two and continue on page one if I set the top of a sheet of paper at the bail and don't change the default "Design" or "Footer". The "page two" comes from the footer of the previous letter and the footer for page one appears at the top of the second page. The solution is either to set the sheet top at the print head (and waste a sheet of fanfold!) or change the defaults. I usually get rid of the footer right at the start! If you are using single sheets then use the Design option to give a bottom margin of 9 and an upper one of 0.

One of my reasons for getting the FX85 was that it has a full user-definable character set and my wife teaches Russian. Ideally I would like to have QUILL displaying and printing Russian characters, but this seemed an impossible dream. (I once wrote to Psion about this but they more or less ignored the question.) However it turns out to be relatively easy. As you may have noticed, QUILL uses a condensed character set to display sub- and superscripts. It uses the same set for both, by moving the start address along a couple of bytes for the higher set. This means that it is possible to patch in a user defined set of 94 characters and have the regular ROM set available as well. You have to do without sub- and superscripts of course, but your own characters can be full size. If anyone wants to search for themselves the set begins 1F 5F 1F 5F and is at $00009D34 or 40244(dec) relative to the RESPRed address. My QUILL is "QL-WP 2.10", UK versions would likely use a different address. I'd be interested to compare notes with someone with a UK QL if anyone is interested. Eventually I might come up with something worth putting in the library.

I suppose most people have realised that the Epson printers interpret the codes from $80 to $9F exactly the same way as those from $00 to $1F, effectively only 7 bits are recognised in this range, even though all eight are generally distinguished. This means that you can put most of the extra printer codes into QUILL without "wasting" translate options if, like me, you need these to get extra characters for Finnish and Chemistry. In particular <CTRL ;> (on screen) gives ESC and can simply be followed by the appropriate character without either of them printing, even though they appear on the screen. I find I can usually put them in a blank line and thus avoid any justification problems.

My RESPR problem was just that I hadn't realised that you must not have any jobs running when you do it. I also found that if you RESPR more than once you can waste a lot of memory. The address returned is what you asked for increased to the next integral multiple of 16 from the previous value of SV_RESPR [PEEK L (163868)]; but SV_RESPR itself is decreased in multiples of 512. So, for example, if you RESPR(100) you get 112 bytes and waste 400 if you RESPR again without thinking. If you are putting in more than one resident procedure, and are tight for memory you need to allow for this. My "boot" now asks which procedures I want, tots them up, RESPRs enough for them all in one go, and packs them in tidily. Judging from the programmes in the library some people know about this while others don't. (It isn't explained in Adrian Dickens's book as far as I can see.) I suspect that QDOS doesn't trifle with anything smaller than 512 bytes when moving the memory boundaries about.

Despite all the clocks available in the library I still use the one in the manual (12/84 edition) adapted to fit in the top right hand corner of the monitor screen. Change the last line to:-1060 DATA 0,1024,120,10,392,0. It multi-tasks nicely with QUILL without overlapping anything important, and uses less memory than any of the others. I've modified QUILL's boot to exec it on request.

I've found another pair of reserved words that cannot be used as variable names, SUB and SUB$. Has anyone any idea what these are for? And has anyone worked out how to use TRA yet? If it's for foreign character sets I might have a use for it!

I got my son to bring back the QL C package at Christmas since he knows the language. But we soon found that while it technically can run using the Microdrives on an unexpended QL the compiler runs the Microdrive continuously for so long that it almost always fails. Not quite always though; if anyone wants 25K of code that prints "Hello World" send me a cartridge! It'll have to wait until I've got disk drives or RAM disc, which might be even better I suppose.

I gather from a recent Tuesday Times that QL User is being terminated and the title sold to QL World. As a subscriber to the former with six months to run I hope that my subscription will be transferred as well. The December issue has just arrived and it did seem to be running out of steam so I cannot say I'll miss it much, but I hope it isn't an omen.

One of my new cartridges formatted 247/248. Is this a record?

Could I suggest that you include the date of writing when you print members letters, sometimes inevitably our comments are out of date by the time they are printed, like mine on the price reduction in Canada, (Now $600 = £300!) and it would give some perspective. We don't have to be like commercial magazines and cover up the obvious fact that these things are not instantaneous.

Dr. Howard J. Clase,
c/o Chemistry Department,
Memorial University,
St. John's, Nfld.,
Canada. A1B 3X7.

/* Most contributions I receive are undated. I find it much easier to chop out things like the date, and just include the main text, when editing QUANTA. LFH */

We all know Sinclair's reputation for broken promises, fanciful delivery dates and grossly misleading advertising, and lately the likes of the Medic saga have served to remind us that there are still plenty of this in the QL marketplace, as the unfortunate David McCullagh's letter (QUANTA, January 1986) sadly attests. Whilst bearing Mr McCullagh's plea in mind, this story may be of interest to other members.

I was one of the many in the original queue for QLs and I've had my machine since July 1984. Like many, whilst appreciating its many virtues, I gradually became aware of its drawbacks and eventually decided that I must invest in extra memory and disk drives. Wary of the stories of dubious companies I scoured the computer press searching for the equipment I wanted from a name I could trust. I eventually decided on Eidersoft who, as well as having what I believed to be a good reputation, were advertising a tempting package deal containing all the elements I wanted 512K internal memory expansion, twin 3.5 inch disk drives and a disk interface.

My mind was made up but, still being on my guard, I thought it a wise precaution to ring first to check on availability. Shortly before Christmas, then, I rang Eidersoft. Yes, I was assured, everything I wanted was in stock and the only problem was that I'd have to settle for a soldered RAM expansion (as opposed to a piggy-backed one, which they were still waiting for). I told them this was no problem as my QL was out of warranty anyway. I explained the fact that, as the machine is used for business as well as purely hobbyist purposes, it was essential that they could achieve a quick turn round. Their salesman assured me that they could guarantee to have it back to me within seven days of it being sent.

I was suitably reassured but, in view of the Christmas post, I thought it better not to despatch the QL at once. On Friday January 3rd. I sent the computer and my order to Eidersoft. I asked for the RAM expansion, twin disk drives, interface, some software and some disks. Altogether the order came to nearly £630 and my cheque was enclosed with the order. I also sent a letter detailing my conversation with their representative, stressing the need for their promised seven day turn round and giving my home and office telephone numbers in case of any difficulty.

I sat back and waited ... and waited. Friday January 10th. came and went, as did the Saturday. On Monday 13th. I phoned Eidersoft. To summarise a long and frustrating conversation, it seems that the original assistant had been wrong to say that everything was in stock. They had no drives and were having difficulty in getting hold of the 512K boards. They did have a working dual drive in the office, though, which they would be prepared to send me, and if I would agree to the temporary solution of a 256K plug-in expansion they could despatch everything that night, then let me know when the 512K boards were available. It wasn't perfect but, in the circumstances, it seemed to be about the best I could hope for. I was guaranteed delivery by that Wednesday. Wednesday arrived but my goods and my QL didn't. Again I rang them and again they were full of apologies. The "working" disk drives in the office had broken down and they now felt all they could do was to offer me my money back. Why, I enquired, hadn't they bothered to telephone me and let me know? "Sorry, but I've been at the Ministry of

Defence all day." Good grief, if this bunch of " *********" are working for the M.o.D., no wonder Heseltine resigned: "What about my QL, then", I continued? I'd been without it for a week and a half. "Well, sir, if I can guarantee anything at all, I can guarantee to have the computer back to you by tomorrow." (Thursday). On Friday 17th. I rang them again to find out the QL's whereabouts. Yes, it had definitely been dispatched via Securicor. It arrived on Monday 20th. January at 5.00 p.m. To be fair to Eidersoft, they did send me three pieces of software to compensate me for the inconvenience (I'll forgive them the fact that one refuses to load) and an apology scrawled on a compliment slip, inviting me to re-order when they received their stocks! Having said that, it was little consolation in the light of the frustration I had suffered, not to mention the loss of the QL for over two weeks.

Like most good stories, however, this one has a happy ending. On Monday 20th. January I rang Strong Computer Systems of Carmarthen, having seen their advert in the December issue of "QL User". On Tuesday 21st. January my QL, order and cheque were collected by their courier. On Thursday 23rd. January the computer and all my goods arrived back, and the bonus was that the deal cost me £50 less than Eidersoft were charging. Thank you, Strong Computer Systems, for restoring my faith in the QL peripherals market.

G. S. Robison,
20, Wasdale Close,
CRAMLINGTON,
Northumberland,
NE23 6LNF

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Thanks and congratulations to Brian Pain, Leon Heller and their colleagues who run QUANTA, for providing a rapid and helpful information service for QL users. Owning a QL has been my first experience of computing, and I am conscious that I still have many gaps in my knowledge, which I would like to fill.

I have a D06 machine with a Brother HR5 printer and an Electrohome high resolution colour monitor, a Tandata 1400 modem, and the Qcon unit originally distributed by O.E.L. but now made by Tandata. The 1400 modem was manufactured by Tandata as an independent unit in its own right, and I have had only modest success in connecting it to the QL via Qcon. The monitor, printer and computer all work together successfully. At the time of writing, I have on order a Silicon Express 3 1/2 inch dual disk-drive and interface, which I hope will be connected to the computer without much trouble. The sheer complication of the system I have described makes me yearn at times for an "all in one" unit such as the Macintosh, but I have been able to build mine up in my own time, and have probably learned more my doing so. So much for my set-up.

Having had some professional experience with the Logica Flair System, (I have also used the Quantel "Paintbox"), my long-term goal when I bought the QL was to do some work in software development, working on Art programmes. Although graphics commands on the QL are better in many respects than they are on other machines in the same price-bracket, they do not exploit the power of the 68008 to the full, and with this object in view, I have been trying to learn 68000 Assembler. I have the Adder Assembler, and am now sufficiently familiar with the syntax to be able to call the routines in the operating system. I now need the ability to write my own blocks of code, which for the moment is proving difficult. When this is done, I assume I shall be able to write complex screen-handling utilities in assembly, which I can then name, and add to the system via the BP_INIT facility.

To do all this, I need a much clearer idea of the QDOS Operating System, and its workings. My concept of the operating system and its relationship with the memory map in the QL is still quite hazy, despite attempts to clarify it using books and the QL manual. Although I am reasonably clear on the Syntax of 68000 Assembler, I an still not sure about the exact effect of some of the commands, which has led on occasion to some bizarre happenings, difficult to correct. The main books I have consulted so far are:

QL Advanced User Guide - Dickens.
Advanced QL Machine Code - Denning.
M68000 Programmer's Reference Manual - Motorola.
Machine Code Programming on the Sinclair QL - Gandoff.
Programming the M68000 - King and Knight.
Programming the 68000 - Steve Williams.

I also have the first version of the Sinclair Manual, which is rather sparse on the subject of QDOS. If there is anyone out there who can help me first to understand QDOS and the memory map, and then to write my own blocks of code, I would be grateful. I also need clarification on the use of condition codes, supervisor/user mode, and Trace mode. I will probably learn all of this on my own eventually, but I would like to speed the process up a bit.

Also, if there are any artists who have been intrigued by the power of the QL, and would like to write routines to emulate the more sophisticated effects of 2d art, (perhaps they already have), then I would also be interested to hear from them.

I would also be grateful for any information about software teams writing the kind of programme I would like to be involved with. (I have already been in contact with Kuma Computers.)

Good times to phone me are: at weekends,(daytime or evening) and during the day on Tuesdays and Wednesdays. I am usually unavailable on Thursday evenings, and on other weekday evenings between 17.00 and 20.00 (5.00. p.m. - 8.00. p.m.) If anyone thinks that I can help them, they may like to phone or write.

Matthew Roberts,
Penfold Wick,
Church Hill,
Chilton,
Didcot,
Oxon. 0X11 0SH. Tel: Abingdon 834309

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Each month the problem section contains a number of interesting questions, and no doubt many QUANTA members would like to hear the answers. Our esteemed Chairman kindly resolves some of the difficulties, but it is not reasonable to expect Leon to answer them all. I suspect that the majority of correspondents do have their problems solved, but by private letter, and so I would like to suggest that where the problem is likely to be of general interest the solution is sent to QUANTA and copied to the "puzzled one". In this way the problem setter would receive his answer quickly, and the rest of us would be enlightened in the fullness of a QUANTA month.

To put my words into action, R. Page set an interesting puzzle in Jan. '86 QUANTA, that of using user defined characters in QUILL. The solution in full is too long for Leon's typing fingers, but here is the principle:-

1. Set up a font in resident procedure space (using TT's Toolkit if you like).

2. Put the font address into one of the unused system variable spaces (e.g. $280AC)

3. Run a programme from QUILL boot as a multi-tasking job which continually sets the font address for the appropriate channel driver.

4. Go through QUILL, find where it is resetting the font addresses (TRAP E3, DO = $25) and deal with them by replacing the TRAP with NOP.

The invariably helpful Tony Tebby advised me on part of Stage 4 at the recent Microfair. There are a number of "loose ends" with my solution (it should be possible to kill the job off after it has done its work) but it nevertheless works. If any members would like to contact me for further details they are very welcome. This letter has been copied to R. Page.

James Lucy,
8, Rookery Lane,
Gt. Totham,
Maldon,
Essex CM9 8DF.
Tel: (0621) 891715

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I spoke to Leon a couple of months ago regarding the problem of fitting a Simplex Data RAM module together with a CST disk interface. Whilst it is difficult, with some perseverance it is possible and the system now works well. I am however still waiting for the RAM disk which was promised with the RAM extension module (Does this touch on a tender spot?).

D. Titley,
41, Park Lane,
Cottingham,
N. Humberside HU16 5RX
Tel: (0482) 848329

/* Simplex are supplying Tony Tebby's RAMdisk software. LFH */

PROBLEM SECTION

Psion Chess and Talent's Zkul do not run with extended memory. Psion CHESS gives the absurd "out of memory" message when an attempt is made to load it. This occurs because the loader attempts to reserve all memory from RESPR(0) down to a specific address. When extra memory is present QDOS seems to occupy a little more space and the specific address is not available. Attempts to correct the problem have met with no success. Do any readers have solutions?

Zkul gives the "bad parameter" message endlessly. Examination of its loader reveals that it reserves a specific amount of memory, then jumps to a specific location after loading. When extra memory is present this address is no longer inside the reserved area. Again, simple attempts to correct this have yielded no solution. Do any readers have a solution?

I have written to Psion and Talent asking for solutions and if I get anything I will let readers know.

John W. Cook,
2, Manor Road,
Martlesham Heath,
Ipswich,
IP5 7SY
Tel: (0473) 625447

/* One technique that might work is to note the load address and start address for an unexpanded machine, and load the programme at that address when using it on an expanded machine. It might crash, but the chances are that you'll get away with it. This works with Tandata's modem software, and the snooker programme reviewed in this issue. Alternatively, you could get hold of the "shrink" programme mentioned by one member, which makes an expanded machine think it has only got 128K. LFH */

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I have attempted to compile a programme containing UDGs with Supercharge without success - the defined character set was overwritten by the ROM version. I don't know whether anyone else has managed to redefine characters in a compiled programme.

I replied to an advert in PCW (also advertised in QL User) for a Cloning programme from Persoft Software - Brussels. They cleared my Eurocheque in mid November, but despite several letters I have had no reaction from them whatsoever. I have written to PCW and QL User (before I knew of their demise). I don't know whether you can keep your ear to the ground when you are in Belgium later in February. I enclose further details regarding the adverts etc. Before you throw your arms up in horror I fully endorse your views on software piracy and hasten to add that I intended to use this programme purely for the purposes of backing-up commercial software which is only supplied on Microdrive.

D. Titley,
41, Park Lane,
Cottingham,
N. Humberside HU16 5RX
Tel: (0482) 848329

/* As I said in the Feb. issue, Simon Goodwin reckons that UDGs with Supercharged programmes work OK, provided you use something like Tony Tebby's UDG technique (included with his Toolkit I).

Does anyone know of a genealogy programme for the QL?

Iain M. Parfitt,
872, Fishponds Road,
Fishponds,
Bristol, BS16 3XB.

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Sinclair have refused me membership of QLUB. Is there any way that QUANTA or any of its members could send me the QLUB newsletters (or copies)?

Has anyone got the new Okimate 20 colour printer to work with the QL?

Alec R. Reed,
PO Box 1045,
98008 Miri,
Sarawak,
East Malaysia.

/* QLUB membership is not really worth having, so you aren't missing much! Can anyone help - my copies of QLUB News disappeared in my recent move. LFH */

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I am interested in obtaining an Okimate 20 colour dot matrix printer. Has any reader any experience of this printer with the QL?

David Stidwill,
48, Church Street,
Tamworth,
Staffs. B79 7DE.

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I am a film/TV director/producer and would like to contact others who might be willing to develop software specifically for the film/video industry.

Andy Storer,
18, Berkeley House,
Charlotte Street,
Bristol.

AMS make the "Lo-profile" keyboard for the Spectrum+, but it is not available from them for the QL. Does anyone make a quality keyboard for the QL?

Ernest Palfrey,
Coxboro' Cottage,
Cookham,
Berks.

Can anyone suggest how to print bold in ARCHIVE and underline in ABACUS?

Why, when EXECing ABACUS 2.3 with 19K and loading 10K data then quitting, is only 55K free? I understood that Psion 2.3 cleared memory?

Why does Zap in ABACUS not return the original number of K?

Can times e.g. 1:13.4 be entered into ABACUS and manipulated? I have to enter times as text in order to get tenths of seconds.

How does Tasprint compare with Font Editor?

David McCullagh,
244, Sundrive Road,
Dublin 12.

BELGIAN WORKSHOP

Ian Johnson of the Belgian QUANTA group recently organised a weekend workshop in Antwerp. Tony Tebby and I were invited: Tony conducted a couple of question and answer sessions, and I discussed the various languages available, and described how to add additional RAM. Some very interesting software and hardware is now available on the continent, most of which was demonstrated at the meeting. A French company has developed a Logo interpreter and a 3-D game using red and blue graphics, viewed through spectacles with red and blue lenses; a similar technique to that used in 3-D films some years ago. Another company has a video frame grabber, which digitises a picture from a video camera, which may then be stored on disk or Microdrive. Data compression techniques are employed, to minimise storage requirements. Ian has written a very nice multi-tasking "on-screen" calculator, that he will be putting in the library. Two Belgian members have written PCB design software, one in Forth, and the other using a mixture of SuperBASIC and assembler. 2X artwork is generated on an Epson-compatible printer. I saw an example of the final positive produced by one of the programmes (for a RAM card) and it looked pretty good.

The workshop was very successful, and Ian hopes to organise another one later in the year.

Leon Heller

SPANISH GROUP FORMED

A group for Spanish QL users, called QLave, has been formed. They have already produced a couple of newsletters. Contact

Serafin Olcoz,
Baltazar Gracian 21,
1 Cto.,
50005 Zaragoza,
Spain.   for further details.

MAN BITES DOG

What most people do not know is that British Telecom, who were the first users of LENSLOK and who first used the device with their programme Elite, somehow managed to get the column scrambling routine WRONG - another example of BT getting their lines crossed! Their blunder made Elite impossible to use if you followed their instructions. The computer press have been blaming LENSLOK ever since! In reality, LENSLOK is painless to use - indeed, the recent Spectrum No. 1 game (Tomahawk) uses LENSLOK. LENSLOK got it to £l and kept it at £l.

Remember Brian Oliver's letter in January QUANTA comparing the paper used in the SUPERCHARGE manual with Andrex, and congratulating himself on not buying the programme? For the record, the paper in the SUPERCHARGE manual is considerably heavier and considerably more expensive than that in Sinclair's User Guide!!

Leon & Co. have had their eyes opened about how easy LENSLOK is to use, courtesy of a QUANTA member (not known to us, but known to Leon) who gave them an impromptu display at the February Microfair. You can do it upside down, with the display being vigorously shaken, even while being verbally and physically assaulted!! Another member - working on the QUANTA stall - who had never used SUPERCHARGE before, or even seen its manual or touched LENSLOK, got it right first time, again and again. If only SUPERCHARGE compiled C as well as SuperBASIC, we suspect Leon's cup would overflow!

Lastly, Brian Oliver, of paper-judging fame, was spotted at our stall at the Feb. Microfair. And - you guessed it - he bought SUPERCHARGE! No wriggling out of this one, Brian - we have a copy of your National Girobank cheque!!

Freddy Vachha, Managing Director,
Digital Precision,
222, The Avenue,
Chingford,
London E4 9SE.

PS: SUPERCHARGE is just £53.95 to QUANTA members.

MORE ON TRANSATLANTIC TV DISPLAYS

I can now add more information on the differences between the TV display areas of the QL in the US and UK models. This is based on experience with my own JSU model and what I can glean from the literature on the UK version.

The system variable flag is located in a byte at 163890 in both versions. (As far as I can see from POKEing about it is bit two of this byte which is the flag, as long as bit eight is zero numbers above 127 have no effect.) When I PRINT PEEK 163890 in monitor mode I get 0 and in TV mode the value 2 is returned. POKEing in the other value at this address seems to have no effect until NEW is entered, when the machine changes the form of the display, but without losing any resident procedures; window sizes, paper and ink values, and even MODE are also unchanged. In the JSU version this isn't a very good idea if your windows are the default ones for either monitor or UK TV displays, since window #0 falls off the bottom of the screen and you can no longer see your commands as you type them in, although they are in fact still accepted. This is, I think, responsible for the idea that UK programme "don't work" on JSU machines in TV display mode. (There are similar problems with UK programmes for the Acorn BBC fitted with the US ROM.)

When I switch to TV display on my monitor, the active screen contracts vertically so that the top and bottom eighths (32 pixels) are no longer used, but the top line is still addressed as line 0. (This seems to be different from UK versions.) The width is unchanged but of course the edges would not appear on a TV screen. The total area available on a NTSC TV would seem to be 420 x 192 pixels. The sizes of the JSU TV default windows are set by :-

```
100 WINDOW,512,256,0,0 : PAPER 0 : CLS
110 FOR i= 1 TO 2 : WINDOW #i,420,160,46,0
120 WINDOW #0,420,32,46,161
130 FOR i=0 TO 2 : CLS #i
140 REMark Choose your own PAPER & INK !
```

The default screen displays 20 lines of 35 characters in MODE 8 (20 x 70 in MODE 4). Simple arithmetic reveals that the characters are written in a 12 x 8 matrix instead of the 12 x 10 matrix described in the manual. In fact the letters are the same size, but the blank row of pixels between text lines and the bottom row of each character are omitted. This bottom line is not normally used anyway except for a couple of obscure characters in the alternative set. Is this the same on the UK ROM? Similarly in mode 4 a 6 x 8 character block is used.

This information should enable programmers to write programmes compatible with the various display formats. The appropriate window parameters can be set automatically from BASIC as the following demonstration programme shows.

```
100 REMark ******************************
110  nm$= "window_dem"
120 REMark ****** H. J. Clase 1985 *******
125 REMark ******** Main programme **********
130 window_parameters
140 windows
150 skein (w),(h)
160 PAUSE
1000 REMark ******** Procedures **********
1010 DEFine PROCedure window_parameters
1020 REMark Checks machine variables and sets appropriate
parameters.
1030 WINDOW 512,256,0,0:PAPER 0:CLS
1040 IF PEEK (163890)=0
1050    w = 512 : h = 256 : x = 0 : y = 0
1060   ELSE : DIM v$(3)
1070     v$=VER$
1080    IF v$(3)=="U"
1090        w=420 : h=192 : x=46 : y=0
1100        ELSE : w=448 : h=240 : x=32 : y=16
1110     END IF
1120 END IF
1130 END DEFine
1140 REMark *****************************
1150 DEFine PROCedure windows
1160 REMark Defines appropriate windows.
1170 REMark N.B. Not the QL initial windows !
1180 WINDOW#2,w,h*3/4,x,y
1190 PAPER#2,4     INK#2,0 : CLS#2
1200 WINDOW#0,w,h/4,x,y+h*3/4
1210 PAPER#0,2 : INK#0,6   CLS#0
1220 WINDOW#1,w,h,x,y
1230 PAPER 0,2,2 : INK 4 : CLS
1240 END DEFine windows
1250 REMark *****************************
1260 DEFine PROCedure skein (w,h)
1270 REMark Pattern more or less fills screen.
1280 LOCal b, r : h=h-1 : w = w-1
1285 SCALE h,0,0 : n = 45 : b = w*.62659
1290 FOR i = 0 TO PI/2 STEP PI/n
1295 r = .5 * h * b / SQRT((h*SIN(i))^2 + (b*COS(i))^2)
1300 ELLIPSE b/2,h/2,r,.15,i
```

1310 END FOR i
1320 END DEFine skein
1330 REMark **************************
1340 DEFine PROCedure hsave(i$)
1350 REMark For backing-up while developing programmes.
1360 DELETE "mdv" & i$ &."_"& Nm$
1370 SAVE "mdv"&i$ & "_"& nm$
1380 END DEFine hsave
1390 REMark **************************

Howard J. Clase,
Chemistry Department,
Memorial University,
St. John's, NFLD,
Canada, AlB 3X7.

ADD ON MEMORY PERFORMANCE

I have recently completed the construction of a 256K plug in memory expansion. It is a conventional circuit using the ubiquitous TMS4500 in auto refresh mode controlling eight 4125615 RAM chips with no wait states (apart from refresh). Using my programme from Jan 86 QUANTA it records a loop timing of 4.88 µs, giving a speed increase of 50% over the standard RAM. This is 23% short of that achieved by code in EPROM and is accounted for by wait states introduced while refresh is occurring. When connected to produce internally initiated refresh the TMS4500, at the QL clock rate, unavoidably produces more frequent refresh than required by the RAM. This loss however is only a part of the 23% and is not really worth bothering about. When running machine code programmes such as QUILL or an editor/assembler the improvement over the standard RAM is noticeable quite apart from the extra space. The speed of BASIC programmes or Microdrive accesses is hardly affected.

Although the construction was compact with good ground wiring the circuit failed to operate correctly when initially tested on an extender card. The cause was due to glitches on clock and data strobe lines, resulting in the refresh stopping after a few seconds, and corruption of data. Inserting, in series with the clock line, a spare open collector non-inverting gate with pull up cured the first fault, but removal of the extender card was required for the second. In order to fault find I devised the following procedure to defeat the RAM test, which normally would stop the machine on finding faulty RAM. Disable the 74LS138 address decoder by open circuiting the active low strobe and reset the computer. On obtaining the copyright screen reconnect the strobe to ground; the RAM can then be PEEKed and POKEd to exercise and check it whilst the computer

runs on 128k memory only. A machine code read and write loop will be needed to give a sufficiently high duty cycle to make accesses visible on a normal oscilloscope.

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REVIEW OF SUPER TOOLKIT II BY CARE/QJUMP

Super Toolkit II is the new extended version of the original Toolkit written by Tony Tebby and marketed by Sinclair. Toolkit II comes supplied on a ROM cartridge together with a well-written 55 page manual (version 2.01). The only thing missing is the installation instructions (i.e. place the cartridge in the ROM slot before switching the QL on); this could be a problem to people new to computing and cause damage to their computer.

The Toolkit has 119 proc's and functions. Some are rewritten main ROM commands ('LOAD', 'SAVE' etc.). Others are rewritten Toolkit I commands ('JOBS', 'AJOB' etc.). The rest are new.

One of the main advantages of the Toolkit is that all read/write commands now use the default directory. This means that if the current directory is "FLP1_", then you can type "LOAD TEST" instead of having to type in "LOAD FLP1_TEST" .The Toolkit also allows the setting up of sub-directories; anyone familiar with MSDOS, UNIX or hard disk systems will understand the importance of this command. For those who are not: say that you are developing a programme called "TEST" and that "TEST" has to access four data files called "TEST_DATA1", "TEST_DATA2", "TEST_DATA3" and "TEST_DATA4". You could save the programme as "FLP1_TEST" then use the command "DDOWN TEST (FLP1_ is the default dir) then you could save the data files as "SAVE DATA1, DATA2, DATA3, DATA4" ("FLP1_TEST" is the default sub-directory). If you now ask for a dir the result would be :

```
 Disk name        sectors
 TEST
 TEST DATA1
 TEST_DATA2
 TEST DATA3
 TEST DATA4
```

even though the disk may be full of other programmes! In other words the "DDOWN TEST" command tells the computer that the current directory may include all progs/data with the first name flp1_test and ignores the rest. This is called a sub-directory. You can go even further and create sub-directories of the sub-directories! (ie "DDOWN DATA4" will create a sub directory called "FLP1_TEST_DATA4"). Directories are organised as tree structures.

The command "DUP" (no parameters) tells the computer to move up in the directory tree and "DNEXT NAME" tells it to move to another directory at the same level called 'NAME'. Unlike other systems the sub-directories are not written onto the

disk/Microdrive but are what I call "soft" directories. In other words, if you had two other programmes on the disk called "FLP1_TEABC" and "FLP1_TECED EXT" and used the command "DDOWN TE" .(FLP1_ is default) and then asked for a dir you would see that it contained all the "FLP1_TEST" programmes plus "TEABC" and "TECED_EXT". If you are lost in the directory, do not fear; there is a command to help you called "DLIST". This lists data, programme and destination defaults. The defaults can also be found from within a BASIC programme via three functions "DATAD$","PROGD$" and "DESTD$".

It is also possible to access any programme/file in any directory from any other directory if you use the full filename. This directory structure makes QDOS a powerful operating system suitable for use with hard disks (if you can afford them).

The "DIR" command has also been rewritten to use default drives and to halt (CTRL F5) when the display window is full.

Wild card functions can be used with some read/write commands and they include WDIR, WSTAT, WDEL, WCOPY and WREN making life a lot easier for the user .

The SAVE, SBYTES, SEXEC, COPY AND OPEN commands can now all be appended with "_O" (OPEN is appended with _OVER) to make them overwrite existing files of the same name.

One new load routine is the LRESPR command. This loads a file into the resident procedure area and CALLs it. This is the equivalent of: A=RESPR(LENGTH):LBYTES FILE_NAME,A:CALL A so it is a welcome extra for programmers.

CLOSE can now take multiple parameters, and in addition CLOSE with no parameters will close all channel numbers #3 and above.

PRINT USING has also been included in the latest version (2.02) making it possible to print in a fixed format.

The keyboard extensions using the ALT key are a most welcome addition to the Toolkit. ALT pressed with ENTER will recover the last line typed in, but this is not all: it is also possible to allocate a string to any key using ALTKEY char,"string" (ie ALTKEY "a","print "this is a string" ' will print "this is a string" every time the ALT key is pressed in conjunction with the "a" key).

The networking on the QL has also been improved, making it possible to share devices (printers, floppy/hard disk etc.) with 63 other QL's. According to reports it works very well. Although I have not yet tried it out myself I did see a demonstration at the last ZX Microfair. .

I did find one command that can lead to a crash and that's "REPORT". It works alright if the error code passed to the routine is in range (-1 to -21 on a JM) but if you pass, say, 100, it prints rubbish, or even worse, causes an ADDRESS error (this happens when the CPU is told to get a word (16 bits) from an odd address and causes an exception to take place).

/* Ian listed all the functions provided by Toolkit II. I had to leave them out due to lack of space. LFH */

CONCLUSIONS

Super Toolkit 2 is a fantastic programme (Sinclair should include it in the main QL ROM) and it overshadows all other toolkits (Toolkit 1 included) available for the QL. The main advantages in my view are the use of default directories, sub-directories, networking and that great time saver ALTKEY. After using Super Toolkit for a few days and realising the added power I would not consider being without one. I highly recommend this programme to anyone with a QL. Nice one, Tony!

Super Toolkit II is available at £34.50 plus £2.00 p & p from:-

Care Electronics,
Unit 14,
Peerglow Industrial Estate,
Old's Approach,
Watford,
Herts.
Tel: (0923) 777155

Ian Johnson,
Kleinmolenweg 233,
2090 Stabroek,
Belgium.

UDGs IN BASIC WITH RAM EXPANSION AND/OR DISK INTERFACE

In attempting to sort out some bugs in a programme, I came across the letter from Huw Evans on this matter in QUANTA - July 1985. The programme line:-

FONT = 42   + (PEEK_L   (4 + PEEK_L(163960)))

looks to be rather a handful at first. Having examined other BASIC programmes containing UDGs I concluded that this line would only relate to CHR$(n)...31 < n < 128. It is more useful to redefine the characters where n > 127. This led me to do some investigating on how the line above is generated. My conclusions are as follows:-

163960 ($28000 + $78) SV.CHBAS   **Pointer to base of Dickens p.331 channel table**

PEEK_L(163960) >> $2AC60	Pointer to area of Common Heap
+ 4	containing Channel definition
$2AC64	Block for this channel

PEEK_L($2AC64) >> $2B3D0	Base of Channel definition Block
42 >> 2A	Channel Definition Dickens p.333
$2B3FE	Block to +$14. Window definition
	Block to $2A (FONT 1) Dickens
	p.337
$2B3FE	FONT 2

PEEK_L($2B3FA) >> $A158	Area ROM containing the
	standard Character set (FONT 1)

Hex notation used for consistency with Monitor

So to define Characters in range n>127 the programme line above should read:-

FONT = 46 + etc

D Titley,
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Cottingham,
N. Humberside HU16 5RX.

SUPER ASTROLOGER BY DIGITAL PRECISION

I purchased this programme in early Jan 86, the version supplied being 1.5. The package consists of two cartridges, complete with detailed manual and updates_doc which can be read using QUILL. My first reaction on looking at the manual was complete dismay. What should have filled at least 16 A4 size pages had been reduced to little more than postage stamp size. My eyes are fairly normal but I was unable to read the manual, Obviously, any programme is difficult to use until the instructions have been read and digested, so I partially solved the problem by purchasing a magnifying glass! Even so, I found the actual reading to be very frustrating and a tremendous strain. Apart from size the instructions appear to be well written and comprehensive, and suitable for both beginner and more advanced users. HOWEVER, UNTIL A DECENT SIZE MANUAL IS SUPPLIED I CANNOT RECOMMEND THIS PROGRAMME.

The two cartridges contain some 14 or so files which are vital to the running of the programme, so a little time spent identifying them all is well worthwhile. Also included are another 20 or so "birth date" files of famous and infamous people. The programme itself is generally simple to operate, being menu driven and idiot proofed. It is also very fast, having been compiled using Supercharge. One or two features continue to baffle me, such as the ability to produce "progressions" and readings for compatibility testing. Perhaps they will become clearer in time.

The updates_doc merely explains that text output, normally confined to screen or printer (printer drivers are provided for Epson & EP 44), could also be directed to disc, Microdrive or any other output device. In the event this proved to be untrue.

Also contained on the cartridge is a text editor which allows fairly rapid changes to be made to the text files supplied; a further utility allows changes to the character and graphical representation used for the Planets and Signs. A word of warning, if you normally use Ser1 for printing do not select and change the printer name option, or the programme will not load! This option only applies to printing via an interface connected to the expansion port.

After making the usual backups I ran the copies; both cartridges have a boot file present - if the wrong cartridge is in drive 1 a suitable message appears on the screen. The programme loads fairly quickly, the first screen announcing that the programme cartridge may then be removed - again not true. This is because there are three text files spread over the two cartridges and they must all be accessible to the main programme. This can be overcome by transferring all the text files to one cartridge, with the remaining files on the other cartridge. Pressing space then takes one into the first menu.

Assuming that you would like to see your own horoscope first you then have the opportunity of entering your own details of date/time and place (i.e. latitude and longitude) of birth. At this time I realised that I would have to spend even more money on a cheap atlas that showed lat/long of all major towns and cities.

From this point running the programme was easy - and despite several attempts I could not make the programme crash. Absolute beginners will not make much sense of the early screens as the Planets and Signs are shown in a graphical form which experienced astrologers will easily recognise. However, the utility mentioned earlier also "decodes" the graphics into their English names. Also when selecting the print option the graphics are automatically converted to English, - A nice touch.

After viewing or printing the first few screens comes the most interesting part of the programme - selection of the appropriate text to make a very detailed horoscope. This worked fine on the screen but posed problems when directed to the printer. Each horoscope is about 4 closely spaced A4 pages, and I could discover no means of formatting the output. For this reason continuous stationary is essential. As the resulting document will be about 240 lines long with no page breaks. (Even printing over the perforations).

At this stage I decided to divert the output to Microdrive, as stated in the updates_doc. This would enable me to then import the file into QUILL, so that formatting output and even changing the text, would be very simple. Alas, this feature had not yet been implemented in the main programme and simply caused a crash when loading.

I was beginning to think that I had wasted £25 on the programme, plus the additional cost of a magnifying glass and atlas. I decided to write direct to Digital Precision about the manual and the text output. Their reply was rather disheartening, as only postage stamp sized manuals were available. My query regarding text output would be referred to the author of the programme, who lives in W. Germany.

Three days later I was very surprised to receive a letter, and cartridge, directly from the author at his West German home. The letter explained very clearly how to substitute the programmes on the new cartridge for those on the original. As a result, I am now able to use the package as intended, i.e. direct printed output to the screen, printer, disc, Microdrive or even RAMdisk. An added bonus on this updated version (1.6) is the ability to copy certain hitherto uncopyable screens to a dot matrix printer using the EASEL printer driver. I have expressed my thanks direct to the author for providing such excellent personal service; which should have been provided by Digital Precision in the first place.

Disc users will find conversion easy, as the programmes are not protected and will happily run from either single or twin systems. Easy to make changes to several of the files will suffice. As I am also lucky enough to have extra RAM (512 KB from Miracle Systems at only £125.00) and RAM_Disc software supplied with ICE from Eidersoft, I find it most convenient to run Super Astrologer from ram1 and put all the text output on to flp1. This enables subsequent import into QUILL and nicely formatted and printed text files which I then present to friends and relatives.

I would not wish to start an argument about astrology, or attempt to convert non-believers, but everyone receiving a printout so far has confirmed that the horoscopes produced are very accurate (especially the good points!).

In summary, providing you are able to get version 1.6 of this software, together with a decent manual, then I would strongly recommend it to anyone with an interest in this subject.

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THE TDI UCSD P-SYSTEM AND PASCAL

INTRODUCTION

I received the UCSD system (from Leon Heller) about six weeks ago, the manuals arrived about two weeks later, but it has taken me this long to write the review because I wished to familiarise myself fully with the UCSD system which I have never used before. In this review (which incidentally, I am currently writing with the UCSD file editor), I propose to take the reader through the steps for getting started on the QL, followed by a brief look at the UCSD System, rounding off with a review of Pascal.

THE SYSTEM

The system comes on Microdrive cartridges (four for Pascal, four for Fortran and three for the Advanced Development Tools and some system programme sources). The system may be run from these cartridges, however it is unadvisable due to the constant accessing of whatever storage medium (eg Microdrives or Disk Drives) you are currently using and the reliability (or not) of Microdrives.

GETTING STARTED

The system does not use conventional QDOS Files, instead there appears to QDOS one big file called "p_system" which when a directory is taken under UCSD, is revealed to hold many UCSD files. There is one p_system file on each cartridge. Most of the routines are not held in memory, but are swapped in as and when needed, therefore, to run from Microdrives would involve much swapping of cartridges containing different p_system files.

Unfortunately, there is currently no device driver within the system to handle ordinary QDOS files which probably means that this review, when written, will have to be read into a standard file using a sector editor!

One big p_system file may be built if there is enough space on the storage medium using a programme supplied on the boot cartridge called "PREPARE". This p_system file will be empty to start with. The individual p_system files may then be consolidated into this one big one under UCSD using the F)ile option from the main menu, then the T)ransfer option, which is used to transfer files. By using wildcards the whole process need take no more than about half an hour. This was not the case with me, however, as I had never seen a UCSD system before and needed to experiment, then when all else failed I actually read part of the eight half-inch thick manuals supplied with the complete system.

What a surprise: computer manuals that were well laid out, written in very readable English, with good contents, good indices, and containing all the information you could require in the section/manual you would expect it to be! Whilst on the topic of manuals, here is a brief resume of the manuals you receive with the TOTAL system:

Sinclair QL Owners Handbook - the thinnest of the lot, nonetheless containing some useful information on the "p_system", operating procedures, configuring the QL, and the differences and compatibilities of the QL implementation against other UCSD systems, and appendices containing a directory listing of the system cartridge contents (which incidentally matched mine exactly!).

The Operating System Reference Manual - which gives an overview of the system, the commands available, disk swapping & file management, the screen

editor, the utility programmes supplied with the system and various useful appendices.

Programme (TDI's spelling, not mine!) Development Reference Manual - this contains sections on user-friendliness, using the compiler and the options, the user interface, turtle graphics, file management, debugging and analysis, and details of some of the utilities on the Advanced Development Toolkit cartridges and useful appendices.

The Applications Development Reference Manual - designed for experienced programmers who intend to write their own systems as opposed to programmes under the UCSD p-system. This supplements the other manuals

Assembler Reference Manual - This describes the   p-system   Assembler (included even if you just buy Fortran or Pascal on their own!) which produces assembly language code for the 68000, although, theoretically it could produce code for any of the other processors if the appropriate files were included with the system. (These include Z80, 6502, 6800, 8080, 6809 amongst others.)

Internal Architecture Reference Manual - covers the internal details of the p-System, the instruction set, code file format, low level I/O mechanisms, and operating system details. Once again this is designed for the systems/applications programmer.

Fortran-77 Manual - The reader is assumed to have some prior knowledge of Fortran although this explains each aspect of this implementation in some depth.

UCSD Pascal Handbook - Unlike the Fortran manual, this could be used by a beginner to Pascal, given that he had used another high level language such as Sinclair SuperBASIC extensively. It is also an excellent reference manual, well laid out with some fine examples.

AN OVERVIEW OF THE UCSD OPERATING SYSTEM

The system is organised in an hierarchical manner, both in terms of command entry and file organisation. On booting up, the user is presented with the main menu of options. All menus are one line of key words - One letter in each word in capitals being the key to press to select that option. A question mark at the end of the menu indicates that there is more than a line-full of commands, and by pressing it, subsequent one line menus containing more options are displayed on the top line of the screen. You are also allowed sub-volumes, so that you could define a sub-volume to contain all text files, another to contain all object code files, and possibly further levels of segregation within these categories.

As it comes , the system is configured to work with an 80 column by 25 line screen, although facilities exist for tailoring the configuration in many different ways,

including definitions of special keys, the screen size, what devices the system will recognise. In fact it is even possible to write your own device driver and incorporate it into the system. The device drivers already recognised are:

Screen
Console
graphics screen
Disks
Printer
serial input and serial output ports
subsidiary volumes
and ram disks.

Filing commands may be accessed from the main level menu by selecting 'F'. which gives the filing menu. At first this seems a bane compared with QDOS, until you realise that once you have selected a file to work with, this becomes the current work file and you need only press 'C' to select compile to compile and run the file without having to type its name. If it produces errors you have the option to jump straight into the editor and the cursor will be at the first point the compiler discovered an error. Also, selecting edit once a current work file has been selected will take you straight into the current file.

UCSD allows wild cards to be specified when referring to files as well as having the ability to enter a "?" as part of a file name e.g. FRED? which will question the user about whether to perform the current command on each file beginning "FRED". Hitting <RETURN> in response to a question issued from a command will abort the command.

A p-system file can be examined for bad blocks, and these can be marked as such. Files can be transferred from one device to another. A directory of a device may be produced, or an extended directory, and by specifying wildcards within the command, only selected files need be catalogued. By directing the output to the printer, a hard copy may be produced (or the print programme may be used which allows changing of print parameters similar to the Psion "Install" programmes).

The system date can be set and is stored so that on rebooting you are told what the date was last time. This can easily be changed with the date option. The date is in the format DD-MMM-YY e.g. 21-Feb-86. The date is used to date stamp all files so it is always worth setting it correctly.

Within the editor there is an option to set the environment. This provides some pretty useful features, such as specifying whether the file being edited is text or a programme - giving appropriate indentation, wrap around, margin and tab settings. Also displayed is the file name, the amount of space used and the amount remaining (in bytes), the date the file was created and last revised together with a revision number. One thing that is missing is the word count, although that is an easy programme to write in Pascal.

PASCAL

Pascal involves using most of the commands and routines of the UCSD operating system, therefore a minimum amount of knowledge of what is available is required before you can start to write a Pascal programme.

The Pascal manual is quite comprehensive, and if you were keen, it would be possible to approach this system without prior knowledge of either Pascal or the UCSD operating system - however, I would advise supplementing your knowledge of Pascal from a standard text on the subject.

This Pascal implementation is an extension of the language originally designed by Nicklaus Wirth. It includes arrays, programme segmentation , extensions to cope with string handling, memory management, the ability to handle currency, virtual memory, with automatic swapping of programme segments, and 36 digit packed BCD arithmetic.

I have compiled and run several programmes successfully and have no complaints about the Pascal compiler, neither have I discovered any bugs.

CONCLUSION

The current price is £99.95 for Pascal, £99.95 for Fortran and an extra £49.95 if you want the Advanced Development Toolkit. A lot of money to spend if you decide to try to learn Pascal as an option to playing Chess, or Adventure, however if you would like to try a different operating system, and have the time and patience to learn it then this is an excellent system, which - as languages go - gives you good value for your money.

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Edgware,
Middx. HA8 9RJ.
Tel; 01-959 7382

/* One nice thing about the p-system that Michael omitted to mention is that the object code written on any machine may be transferred to any other machine, as long as the target machine has the necessary run-time package. LFH*/

JOSS BY WD SOFTWARE - A SECOND OPINION

This utility has been regularly advertised in Popular Computing Weekly for £13, plus the cost of the required storage medium, and the wording of the advert seemed appealing. After reading Leon Heller's review in last month's QUANTA, I was interested to see for myself, whether it could be useful for my needs, particularly with the Psion programmes.

The accompanying instruction booklet gave very little insight as to how JOSS would help with the Psion programmes despite their being mentioned in the adverts and I was unable to make much progress. Unless I have missed something, I could not see how JOSS would help after all.

Concerning the programme in general, I feel that most of us will not find much practical advantage in it's use and have to agree with Leon's comments.

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Rockfieid Road,
Oxted,
Surrey RH8 0EL

/* I sent JOSS to Alan for a "second opinion". LGH*/

LENSLOK REVISITED

In the January 86 Issue of QUANTA there was a letter from Brian Oliver regarding the use of protection devices on software generally, and the Lenslok system used on Simon Goodwin's SuperCharge compiler specifically. Whilst agreeing with Brian that most security systems can be beaten, the Lenslok routine as used in SuperCharge is exceptionally well hidden from the budding pirate.

With practice, the Lenslok routine can be completed within 8 seconds of completion of loading SuperCharge, yet it costs only an additional 10 pence per programme to instigate.

This saving has been passed on to the consumer, and without it this software "work of art" would probably be out of the price range of the man on the street (who is the target for this exceptionally easy to use piece of software) if a more intricate method had been employed. To quote Tomorrows World - "simple but ingenious".

The same price argument holds for the documentation, but I agree here with Brian's idea of spending slightly more to improve the method in which it is presented. Had Brian read the manual in more depth, he would have seen that it not only contains a comprehensive guide to using the software, but also sections on:

1. Getting Started - useful when you have bought your new toy and wish to play with it straight away.

2. Multitasking SuperCharged programmes

3. The extensions to SuperBASIC included with the package.

Plus example programmes, a detailed glossary, and information which the original QL Manual should have contained in terms anyone can understand.

I did not mean to turn this letter into a review, but I hope Brian takes notes of my points.

Well done Leon and Brian (Pain) on a marvelous magazine.

Michael Gottlieb,
22, Gibbs Green,
Edgware,
Middlesex. HA8 9RJ

CARE/QJUMP SUPERTOOLKIT

I have recently received the new QL Supertoolkit from Care Electronics. This toolkit is a long awaited ROM version of Tony Tebby's old toolkit on Microdrive cartridge. I have used it for about a month now and think that I have discovered most of its foibles and bugs (features!)

The ROM itself is a nicely packaged little black box that juts out of the back of the QL. Unfortunately, in common with most expansion ROMs, it suffers from the problem of being exposed to damage at any time if the QL is moved very much. The instruction, as far as I know, give no information on plugging in the ROM, which although very simple, should, I believe, be done with the power off to avoid damage to QL and ROM.

The manual is comprehensive but adds another ¼ of an inch to the user guide binder. The draft version with which I was supplied starts by describing those features that did not exist! Apparently some had been left out due to lack of space in the ROM.

There are far too many facilities to mention them all, even briefly but here are some of the more interesting ones:-

Default directories: Virtually all commands (old and new) that require a file or drive to be specified , now assume a default unless otherwise told. For example, the tortuous dir Mdv2_ now only needs dir (Mdv2_ is the default data directory).

Built-in user-definable clock and alarm programmes.

Last line recall for command channel (The only real bug I could find: This sometimes produces weird results if used repeatedly.) And user definable ALT Keys - any key produced by ALT can be defined to produce a string.

The infamous CALL bug has been removed, and there is a patch for the MG ROM point bug.

Improved network driver.

The list is endless. Needless to say, this ROM contains virtually all the commands of the old toolkit as well.

Whilst expensive this ROM provides instantaneous access to a whole range of commands from job control for the machine code enthusiasts to a BASIC editor for beginners and advanced users alike and being in a ROM it uses no RAM for programme storage, like the old toolkit, so it's perfectly useable even with a minimum RAM QL.

I like it and recommend it to anyone who can afford it. A very good piece of software, it's only a shame that the QL didn't have many of these facilities built into it when first developed. Some are expected on computers these days, like the screen editor but we have to wait for someone like Tony Tebby to write them and sell them separately. Oh well, such is life.

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Brighton,
East Sussex BN2 1QD.

"STOCK MARKET MANAGER" BY PORTFOLIO SOFTWARE

I retired in July last year, and thanks to having done a few job switches during my working life, found myself with a shortfall between pension + income and savings and the necessity to maintain the standard of life that I felt that I deserved. I had always visualised myself getting a part time job, but in the present employment climate, that was out, so, it seemed that the only practical thing I could do was make my savings work considerably harder than they did tucked away in the Building Society. The problem was that I had not been in touch with a stock broker for twenty years, and it was very obvious to me that if I was to succeed, I would need a devil of a lot of organisation. It was when I was racking the brain on this matter that I came across an ad. In QL User for a programme "STOCK MARKET MANAGER". It seemed to offer a solution to my problems, Valuation, Analysis of performance against the market, calculation of return on investment, and assessment of liability to capital gains tax. The price was £39.95.

I decided to order it, and with bated breath I awaited it's arrival. It was quite impressive and was packed well. The cartridge was stuck into the inner cover of an A5 loose leaf manual, well indexed, and with cover in matt black, a sort of down-market companion to the QL Toolkit. Instructions were very comprehensive, and began by emphasising the necessity of copying the Master cartridge (They didn't say that the Copy programme self destructed, something which caused a lot of sweat later) It is also necessary to copy the various Files programmes onto a spare cartridge, as all the entered DATA are saved on MDV2_.

The programming is in ARCHIVE, and to load, one begins by loading ARCHIVE in the usual way, and, after using F2 to clear to maximum screen size, The ARCHIVE cartridge is replaced by the STOCK MARKET MANAGER backup cartridge and the command RUN "MDV1_SMM" is entered and the Data Cartridge is slotted into MDV2_. Running, one is faced with a request to enter the date, in the form 1986/02/02. This is, of course, a very logical way to enter the date if sorting by date is required, though I find no logical reason for using the first two numbers of the year. We are unlikely to meet any date in the eighteen hundreds, and I'll certainly have departed this life when the twenty first century has begun. I did raise the matter with Portfolio Software and was informed that ARCHIVE demanded this particular format. Every-time a date is required it must go in absolutely complete. And woe betide the man who makes an error, the programme is quite unforgiving.

On entering, and confirming the date, the Main Menu comes up on screen. It offers the choice of :

    Making a new entry
    Reviewing existing entries
    Valuing the portfolio
    Calculating the return on the investment
    Assessment of Capital Gains Liability

        Quite obviously the first thing that any new user must do is make a new entry which involves simply pressing the E key. Having pressed this key there is a lot of cartridge whirring and the question is asked " Do you want to copy to printer? (Y/N) ". It was here that I hit my first snag. Whether I pressed Y or N, I got no hard copy. (Despite six letters to Portfolio Software, I still have to get a printed copy of any (initial) ENTRY or indeed of any of the files on my stocks. But more of that later. A second menu then appears offering a choice of entry and covering every likely purchase, Equities, Fixed interest, Cash, Options, FT index etc. and having chosen from them, a Form appears on screen covering all the information anyone might wish to record on buying stock. It's Name, type, the number of shares purchased, the price paid, and how much the stock broker took off the top. This information is repeated for a further purchase, and also for a couple of sales, whilst down the right hand edge is space for dividend details covering five years. This is just about as much as the screen will hold, and anyone making more than two purchases or sales of a particular stock can easily open up a second file i.e. I.C.I. & I.C.I1. etc.. Moving from one entry to another is easily done by the TAB Key. On completion of the entry, a second screen for the file comes up on which can be entered the S.E. Prices at the month end. This file covers five years, though as 1986 is the right hand column it will only last for this year.

The information is sufficient for recalculation of the portfolios each month end simply by making a new entry in this last, price/history file. This is done using the second item on the main menu, REVIEW one can review either flipping through the whole portfolio, and there is no breaking off in the middle, or by individual stock. In

either case, one is offered a choice of the two pages of the file, either the purchase history, or the price history. Any entry can be altered easily by pressing a and enter and the TAB key to locate the entry requiring alteration, then using F5 to be released.

I found that from time to time, unless I took particular care, and sometimes even then, instead of moving smoothly from one item to another in the menu, after making an entry, I would quite unceremoniously be thrown back into the main ARCHIVE programme. It took me quite a while to figure out what was happening as ARCHIVE was one of the PSION utility I hadn't used. Sometimes the file automatically closed , sometimes it didn't. I therefore found myself re-entering the programme from the beginning, going through the enter date rigmarole only to find that I was rejected on trying to enter the first menu with a, for me, inexplicable error. This happened when I was a bit hurried and pressed a menu selection key before the Microdrives had stopped whirring. I tumbled to it pretty quickly that if I had been hurled back into ARCHIVE it was essential that I ensured the file in Mdv2_ was closed before re-entering the programme.

I found that the STOCK MARKET MANAGER worked quite well on each of the items on the main menu, and in cases other than the ENTRY and REVIEW modes, I got hard copy as I wanted to. But I felt that whilst considerable care had generally taken to make the programme, as a whole, user friendly, this should have been extended to rejecting inappropriate entries. I puzzled for a while as to why one stock was ignored in calculating the value of the portfolio and eventually realised that it was because I had, in making my entry, put the date in reverse (i.e. normal) order. For anyone who is doing a lot of dealing, I felt that the menu item covering Capital Gains Tax could become invaluable, but as yet haven't figured the meaning of the % return programme.

As you can see, there is an enormous amount of valuable information and help in STOCK MARKET MANAGER, but it still appears to want some de-bugging and idiot-proofing. I shudder to think what my problems would have meant to someone who had bought a QL in order to use the programmes, and without some background knowledge in computers. I haven't been able to work out whether or not it is really good value. For a TYRO like me the manual alone is almost worth the cost. I haven't seen anything like it, and it has certainly helped me to organise myself, so that my plan appears to be working;but I daily get my own portfolio valuation from a spreadsheet programme I have worked out myself on ABACUS, and that prints every time. It also gives me an immediate picture of the way in which the whole portfolio has behaved including both cash values and percentage gains and losses.

PORTFOLIO SOFTWARE operates from a P.O. Box and has no telephone number. I have written to them a number of times and have had partial satisfaction only, from their replies. Part of the programme prints perfectly, but if they intended my entries to be available in hard print, to date this has been completely unsuccessful.

They seem not to understand this and have sent me a second copy of the programme on a cartridge that I sent to them. I haven't used this at all but I have sent it to a friend to test. I await his comments. After sending off an initial review of the programme to Leon, I received a letter from them. I enclose it as being self explanatory.

If you wish to check with my cousin on how he found the programme, he too is a member of QUANTA: Don Finlay, 32, Heath Lea Road,London SE5. Tel:01 852 5944. I'm sure that he'll be happy to oblige. He is a recently retired electronics lecturer at City University, and is still active, younger than I am, lecturing at various institutions in London. It is always possible that the new cartridge doesn't have the problems I experienced. All they can say to me is "I'm sorry, these things don't happen to us."

Wil Jackson,
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MEMORY EXPANSION

The recent spate of DIY memory expansions has shown that there is a significant number of members who are interested in hardware. I am primarily interested in the hardware side of things and was beginning to think that I was alone in this respect.

I have built a card to connect the QL to an extremely old digital x-y plotter manufactured by "Computer Instrumentation" and at the moment I am working on another to interface to a DRE 20MB hard disc. I doubt that either of these will be of particular interest to other members but in developing them I have learned a considerable amount about interfacing to the QL which could very well save someone some time.

In particular Roy Barber's 128k memory expansion (Dec 1985) contains a particularly tricky bug that I fell foul of myself. This concerns the signal DSMCL which must be pulled high to disable the QL's internal memory.

Roy Barber has used a PNP transistor to do this. Granted that this works most of the time but it is prone to failure when the circuit warms up and is very unlikely to work on an extender card. This is because the leakage current of the transistor will bring the DSMCL line up to an indeterminate level.

In my case the symptom of this was that the QL worked fine but was unable to read a Microdrive cartridge - they must require tighter timings than the memory. As a result of this DSMCL MUST be driven by an NPN Transistor.

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STRONG COMPUTER SYSTEMS MEMORY EXPANSION AND DISCS

As soon as finances permitted I always intended to expand my QL to the best possible combination of extra memory and discs, and when that time came I consulted thoroughly all the magazine reviews, including QUANTA, so now that I have my system it's only right to repay QUANTA's help.

640K total was important, which cut down the field somewhat, but Strong Computer Systems had an attractive offer advertised in QL User, that of 640K internal at a price comparable to 512K external boards and the PCML disc interface and discs seemed at least as fast as all others, and the interface provides RAM discs too. Strong has Cumana interfaces, but found their disc drives unreliable and was selling unbadged Mitsubishi drives - the same mechanism as most QL Drives. Although Cumana's interface doesn't include RAM discs, Strong is supplying (upon request) an alternative Strong/Cumana ROM V 1.15 (written by Tony Tebby) which does include RAM discs, and this is what convinced me to order the complete system from Strong - sending off the QL for its internal expansion on a Thursday, with a cheque for £405, and receiving the whole lot back , QL, dual 3½ " drives, (one on top of the other) and interface on Monday morning.

The manual was Cumana's; no info at all on the RAM discs, but they appear to work identically as the other systems mentioned in the mags and QUANTA. A utility disc accompanied, once again no documentation, but it provides about nine machine code programmes that give extended directories, fast backing up, etc. - I have to admit that I don't use them at all.

After the first day or two of reading the manual, and getting used to typing 'flp_' instead of 'mdv_' all the time, I spent one evening copying as many of my microdrive files as possible - dividing up my discs into different categories of file - i.e. for PSION Programmes (and there's so much space on the disc I can have Metacomco's Editor, Assembler & Linker, my own 25K monitor, and still have loads to spare.), QUILL Documents, ARCHIVE Databases, my monitor source files, etc. etc. The system now is truly like a different machine - slaving speeds up all file accesses, and I no longer need to worry about how much RESPR space I take up with BASIC extensions or whatever.

Multitasking of such "huge" programmes as Metacomco's assembler is now possible - so that you can be editing a file (or two), save the updated version and then try assembling it; whilst you're waiting return to editing (perhaps a different file) so no more time wasted waiting for a ten minute assembly. Now that the true worth of multi-tasking is revealed, one continues to feel more and more angry at the poor integration of the PSION packages, not just the non-flashing cursor, but their grabbing up of ALL the free memory. A number of background tasks become sticky once you realise that the PSION stuff leaves not even enough room to open an extra channel or two (this came to light whilst developing a spooler type programme that allows two QLs connected through the network port to use just one printer, independently). One has to resort to trickery and needless complication, but all that makes it even less likely to work on unexpanded QLs.

One of the problems uncovered is some Microdrive programmes that rely on RESPRing to a certain address, giving error messages - this has already been mentioned in QUANTA and elsewhere, but rather attempting to rewrite all the boot programmes concerned (which doesn't work in all cases anyway) I wrote a BASIC extension "SHRINK" which resets a QL and gives it knowledge of only the standard 128K. Disc drivers, workspace etc. don't seem to interfere, so everything is roses now.

I haven't said much about the Cumana ROM BASIC extensions - suffice it to say that it's the standard words - WCOPY, WSTAT, FLP_USE, SPL etc. and I suppose that if the IF & drives were hidden,no one would be able to identify which system one was using. Perhaps the only "niggle" I have is that the drive have no "on" light (although there is an on/off switch.)

The exact package I bought hasn't actually been advertised by Strong - give them a ring to sort out your exact needs: STRONG COMPUTER SYSTEMS, Peniel, Carmarthen,Dyfed, SA327DJ. Telephone: 0267 231246. Needless to say that I have no connection with them other than being a very satisfied customer.

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ARCHIVE RUN TIME MODULE

Leon mentioned at the Birmingham workshop that no-one had written anything about this in QUANTA, so here goes.

RUN TIME MODULE (ARCHRTM) is available from PSION for £19.99. For this I received in August 1985 a second hand cartridge and a 13 page photocopied A4 manual. I do not know if things are now more professionally handled. At the back is a license form to sign and return if you intend to sell application packages (£1.00 to Psion for every programme that you sell).

On the cartridge you receive a special version of ARCHIVE, ARCHRTM and all the necessary ancillary programmes.

ARCHRTM is a very much cut down version of ARCHIVE and cannot function alone as direct commands are not accepted and therefore you must write procedures for it to run. If you load ARCHRTM and it cannot find a procedure to run, the programme falls over and if a procedure ends and ARCHRTM is not instructed within a procedure to do something else, the programme falls over. The procedures must be _pro programmes and must be saved using the special version of ARCHIVE. If you try to load them into the standard ARCHIVE you merely get "Error 103: Wrong file type. Similarly, _pro programmes created by standard ARCHIVE give the same error if loaded into the

special ARCHIVE or ARCHRTM. All is not lost however, as you can load _prg into either version of ARCHIVE and subsequently resave the procedure as a _pro programme.

So what is the point of having ARCHRTM?

1. Over 34 KB of memory is available at start up.

2. On booting in ARCHRTM the programme loads and then autoruns the first _pro programme (on Mdv1_; which must be named "Boot_pro".

3. As 1 & 2 above you can write large procedures which autoload and are menu driven and can be used by people not conversant with the intricacies of ARCHIVE such as secretaries, general club users etc.

4. Up to date version of ARCHIVE therefore backup and other bugged commands are debugged (to the best of my knowledge!)

5. Programme runs more quickly than standard ARCHIVE (slightly).

6. Simple graphics characters are available in SEDIT - 11 box-drawing characters.

7. Multi-line screen slots for a field - up to 255 characters input directly from the keyboard.

8. Screen Driver Codes documented in the manual. E.g. print chr(5) toggles underline on and off, print chr(26) toggles inverse ink and paper colour / inverse video. Lots more of these codes including cursor wrap type and window definition.

9. Machine Code interface so that your own machine code maybe meshed using a usr call. Beep at end of listing as a flippant example.

10. Compatible with full versions of ARCHIVE so that _prg and _pro programmes written on all previous versions of ARCHIVE can easily be converted to run on ARCHRTM. Merely load as _prg and save as _pro.

11. Easy to write a procedure to close dbf's if programme falls over.

Now for the advert. I have rewritten the Library Guide (LIBFILE etc) - actually none of the original procedures were used - and combined both Libguide_dbf's into one so all the current entries are on one database. I have submitted this to the library and if it is accepted can be obtained through the library in the normal fashion. It consists of two cartridges: one contains ARCHRTM, six _pro programmes. Printer_dat, and screen_scn and the other the dbf. One of the modules consists of backup and you can use this with any dbf and so you can get out of trouble if your version of ARCHIVE is

causing problems. This was deliberately written so that it is compatible with the simplest system and the screen is therefore written in TV (64 column) mode. It is upwardly compatible supporting RAM disc, flp disc and monitors however. (Open libguide_dbf, order on two fields, close dbf and backup ram1_libguide_dbf to ram2_ libguide_dbf takes 23 seconds)

Second Advert. I extensively plagiarised Chas Dillon's cartridge and book on ARCHIVE available from QUANTA to write the above. These are worth investing in even if sometimes hard going. The rewards repay the effort many many times over.

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STEVE DAVIS SNOOKER (CDS SOFTWARE).

When the game is first loaded you are presented with several windows. The largest is the top ⅔ which gives a good representation of a snooker table. Due to the "limitations of the machine" (as the instruction sheet says), the black ball is shown as green with a pink centre and the brown is green with a red centre. Other windows show how many points each player has scored, and the total of the break so far.

At the start of the game you are asked to press the fire (space) key, and if you do not do so, the computer goes into demo mode, in which it plays itself. In this mode, both computer players are in the highest skill level in which the computer hardly ever misses a shot. Indeed, some shots look impossible.

You can arrange to play against the computer or another human. Of you choose the computer as an opponent you can alter it's skill level from 1 - 9, 1 being the easiest. You can also control whether you have sound or not. The sound is fairly basic, and can be very noisy if a lot of balls are colliding at the same time. Finally you can set the friction of the table; this determines how fast the ball will travel across the table.

The player on the left always breaks. If you decide to break, you first have to position the cue ball in the "D" using the cursor keys. Then position a cross where you want the middle of the cue ball to hit the object ball. To control the spin of the cue ball you move a black dot on a large white ball, in yet another window, to wherever you wish the cue ball to be hit. This gives you the chance to give the ball side, top or stun, which in turn controls the direction of the cue ball after it has hit the object ball.

Finally, before the shot is made, you must select the amount of power to hit the ball with. This is done by using a sliding scale; the amount of power is vital if you are to control the ball.

   I will not go into how the game is played, but suffice it to say you pot a red followed by a colour and so on until you miss a shot.. The computer or human opponent then has a go. The winner is of course the player with the most points.

   At the start you could have selected the edit option; this allows you to set up the table as you like, in order to do trick shots or practice the same shot until you get it right. You move the hand shaped cursor around the table using the cursor keys and by holding the space bar at the same time as the hand is over a ball, that ball can be moved wherever you like on the table. You can then either play one shot or go to the main game, keeping your table set up.

   There is only one point: if you give the computer too high a skill level it will hardly ever miss, and produce the most amazing shots.

   However for £14.95 it gives a very good simulation of the game of snooker. The balls move and bounce around the table very smoothly, although when a lot of balls are moving at once, the speed does visibly slow down.

   As a snooker fan I can highly recommend this game.

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STOP PRESS

   Medic Datasystems Limited. Is being wound up, according to a press release from the DTI. The official Receiver has been appointed as provisional liquidator until the hearing of the winding up petition in the High Court on 24th. March 1986. Enquiries should be directed to :-

   The Official Receiver,
   Dept. Of Trade and Industry,
   Atlantic House,
   Holborn Viaduct,
   London EC1N 2HD.

   Apparently 220 customers are known to have paid in excess of £72,000 for goods they have not received.

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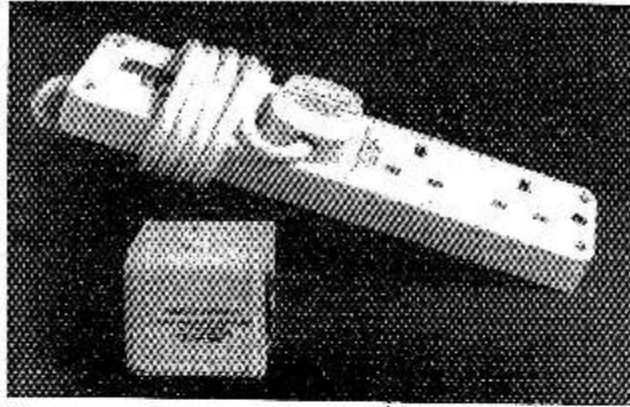| Quantity	Item	Total Cost
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